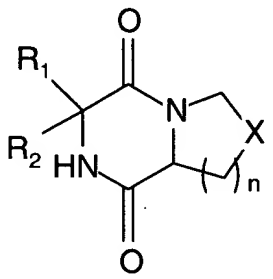
IN THE CLAIMS:

The following is a listing of the latest version of the claims. This listing replaces all prior listings thereof.

1-11. (Canceled)

12. (Currently Amended) A method of providing neuroprotection to a subject resulting from either brain or spinal cord trauma or stroke comprising administering to a subject in need of such treatment an effective amount of a compound having the formula:



or a pharmaceutically acceptable salt or hydrate thereof, wherein:

n is an integer from 0 to 3;

X is selected from the group consisting of –S-,-O-,-NR- and CH_2-;

R_1 and R_2 are each independently selected from the group consisting of –H, -OR,-SR, -NRR, -NO_2, CN, -C(O)OR, -C(O)NRR,-C(NR)NRR, trihalomethyl, halogen, (C_1-C_6) alkyl, substituted (C_1-C_6) alkyl, (C_2-C_6) alkenyl, substituted (C_2-C_6) alkenyl, (C_2-C_6) alkynyl, substituted (C_2-C_6) alkynyl, (C_5-C_{20}) aryl, substituted (C_5-C_{20}) aryl, 5-20 membered heteroaryl, substituted 5-20 membered heteroaryl, (C_6-C_{26}) alkaryl, substituted (C_6-C_{26}) alkaryl, 6-26 membered alk-heteroaryl and substituted 6-26 membered alk-heteroaryl,

or R_1 and R_2 taken together are –CH_2-(CH_2)$_m$-CH_2-, where m is an integer from 0 to 6;

each alkyl, alkenyl, alkynyl, aryl, alkaryl, heteroaryl or alk-heteroaryl substitutent is independently selected from the group consisting of –OR, -SR, --NRR, -CN, -NO_2, -C(O)OR, -C(O)NRR, -C(S)NRR, -C(NR)NRR, halogen and trihalomethyl; and

each is R independently selected from the group consisting of –H, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl, (C_5-C_{20}) aryl, 5-20 membered heteroaryl, (C_6-C_{26}) alkaryl and 6-26 membered alk-heteroaryl.

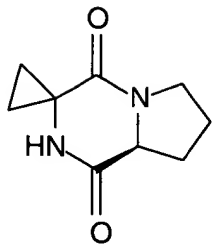
13. (Canceled)

14. (Original) The method of Claim 12, wherein both carbons at positions 3 and 6 of the parent bicyclic 2,5-diketopiperazine ring are in the S configuration.

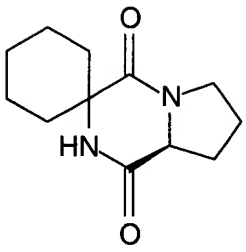
15. (Original) The method of Claim 12, wherein X is –CH_2-.

16. (Original) The method of Claim 12, wherein n is 1.

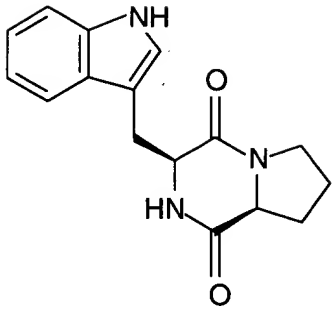
17. (Original) The method of Claim 12, wherein said compound is selected from a group consisting of:



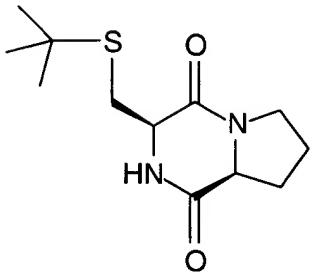
(1a) ;



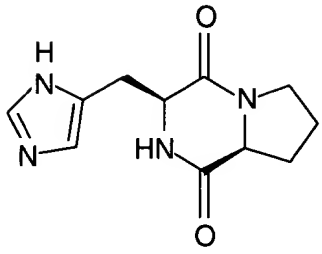
(2a) ;



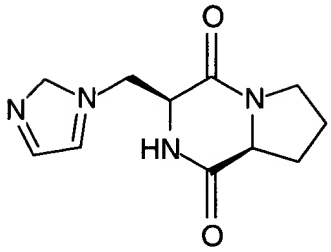
(3a) ;



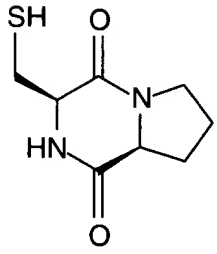
(4a) ;



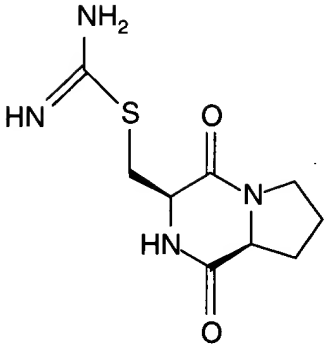
(5a) ;



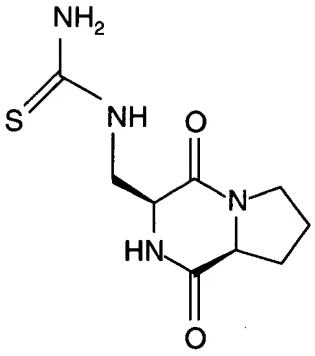
(6a) ;



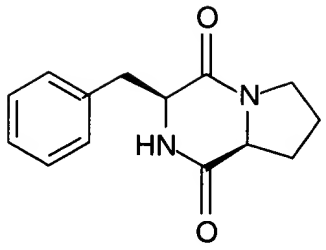
(7a) ;



(8a) ;



(9a) ;



(10a)

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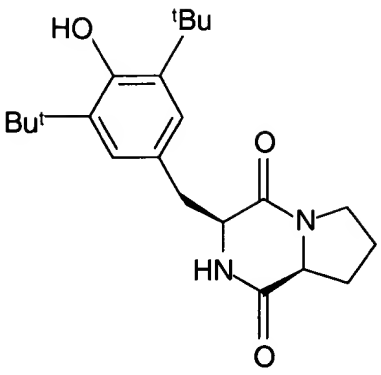

(11a)

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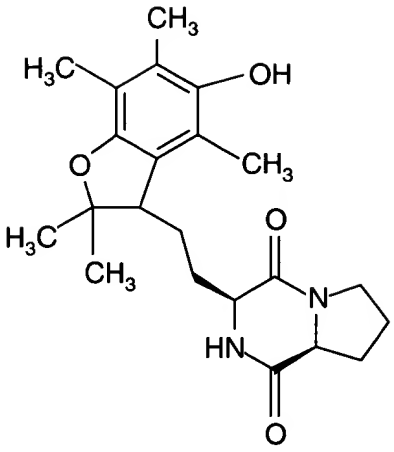
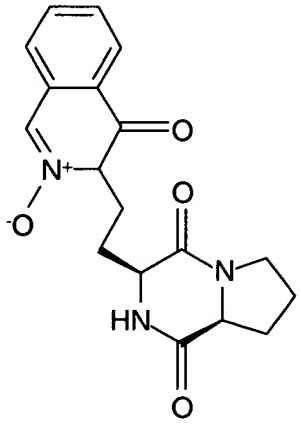


(12a)



(13a)

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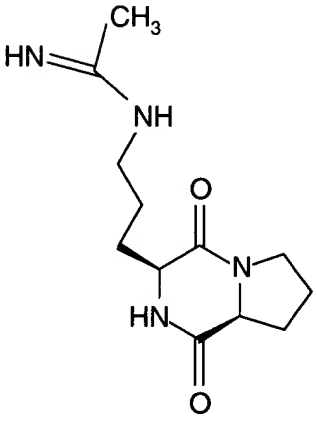

(14a)

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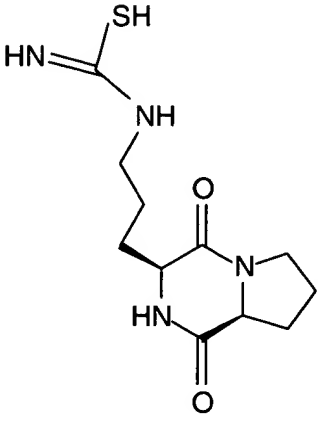

(15a)

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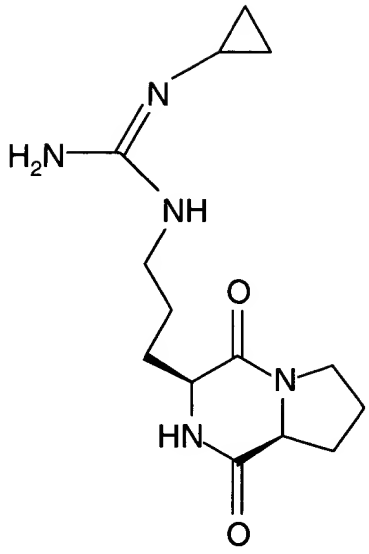
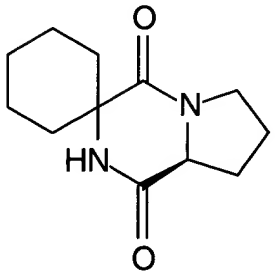


(16a)

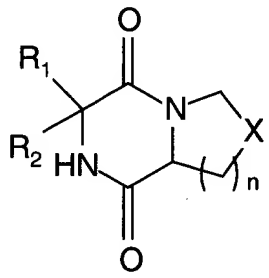
18-20. (Canceled)

21. (Original) The method of Claim 12 in which said compound has the following structure:



22. (Canceled)

23. (Original) A method of enhancing cognitive function, said method comprising the step of administering to a subject an effective amount of a compound having the formula:



or a pharmaceutically acceptable salt or hydrate thereof, wherein:

n is an integer from 0 to 3;

X is selected from the group consisting of –S-, -O-, -NR- and $–CH_2$-;

R_1 and R_2 are each independently selected from the group consisting of –H, -OR, -SR, -NRR, $-NO_2$, -CN, -C(O)OR, -C(O)NRR, -C(NR)NRR, trihalomethyl, halogen, (C_1-C_6) alkyl, substituted (C_1-C_6) alkyl, (C_2-C_6) alkenyl, substituted (C_2-C_6) alkenyl, (C_2-C_6) alkynyl, substituted (C_2-C_6) alkynyl, (C_5-C_{20}) aryl, substituted (C_5-C_{20}) aryl, 5-20 membered heteroaryl, substituted 5-20 membered heteroaryl, (C_6-C_{26}) alkaryl, substituted (C_6-C_{26}) alkaryl, 6-26 membered alk-heteroaryl and substituted 6-26 membered alk-heteroaryl,

or R_1 and R_2 taken together are $–CH_2$-$(CH_2)_m$-CH_2-, where m is an integer from 0 to 6;

each alkyl, alkenyl, alkynyl, aryl, alkaryl, heteroaryl or alk-heteroaryl subsistent is independently selected from the group consisting of –OR, -SR, -NRR, -CN, $-NO_2$, -C(O)OR, -C(O)NRR, -C(S)NRR, -C(NR)NRR, halogen and trihalomethyl; and

each R is independently selected from the group consisting of –H, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl, (C_5-C_{20}) aryl, 5-20 membered heteroaryl, (C_6-C_{26}) alkaryl and 6-26 membered alk-heteroaryl.

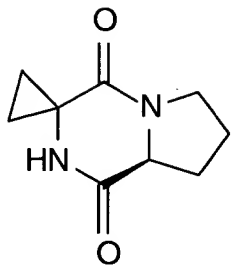
24. (Original) The method of Claim 23, wherein the cognitive function is memory.

25. (Original) The method of Claim 23, wherein both carbons at positions 3 and 6 of the parent bicyclic 2,5-diketopiperazine ring are in the S configuration.

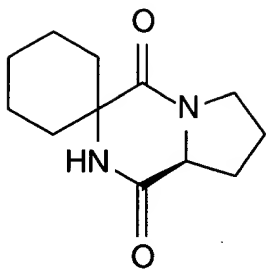
26. (Original) The method of Claim 23, wherein X is $–CH_2$-.

27. (Original) The method of Claim 23, wherein n is 1.

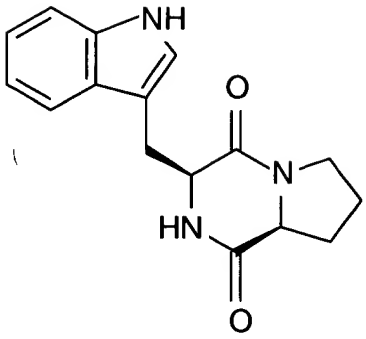
28. (Original) The method of Claim 23, wherein said compound is selected from the group consisting of:



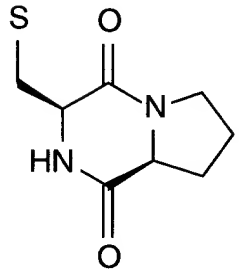
(1a) ;



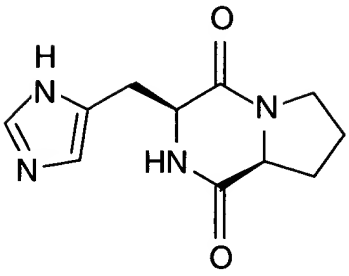
(2a) ;



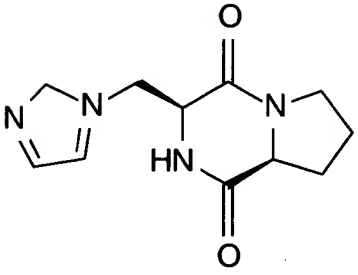
(3a) ;



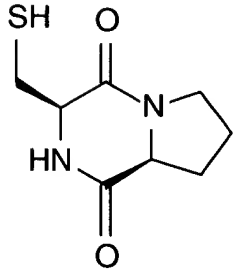
(4a) ;



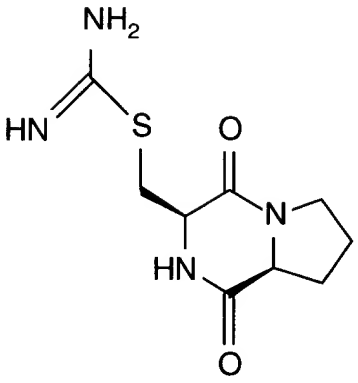
(5a) ;



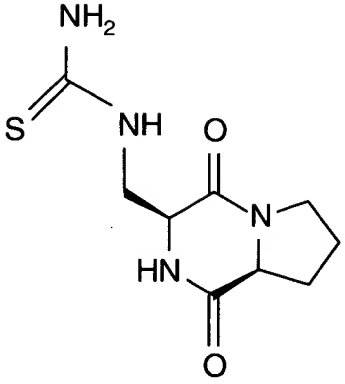
(6a)



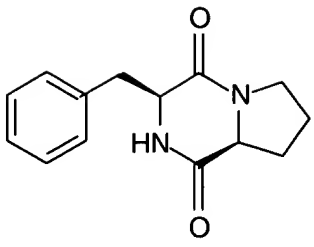
(7a) ;



(8a) ;



(9a) ;



(10a)

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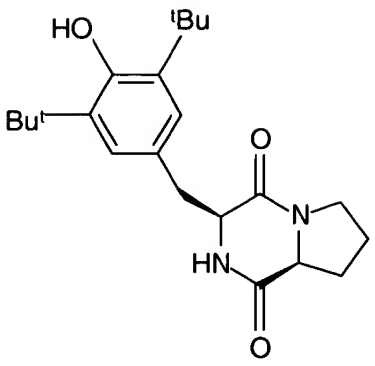

(11a)

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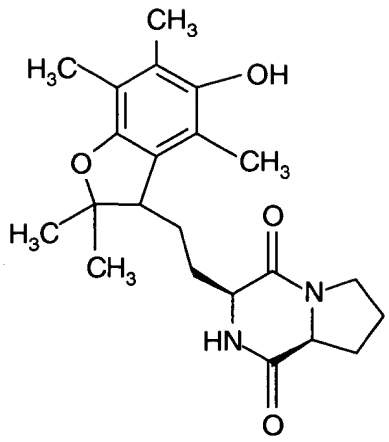

(12a)

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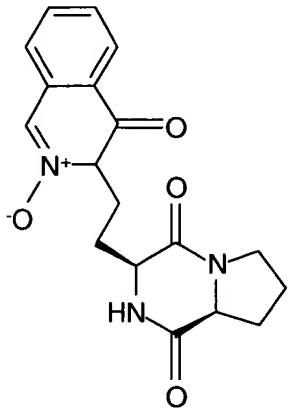

(13a)

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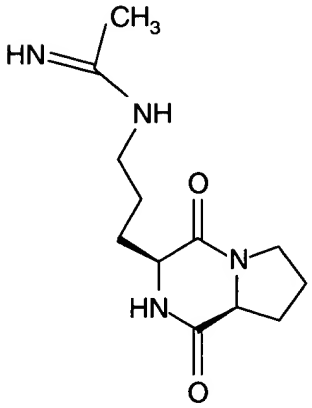

(14a)

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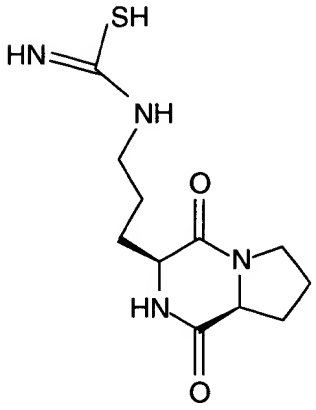

(15a)

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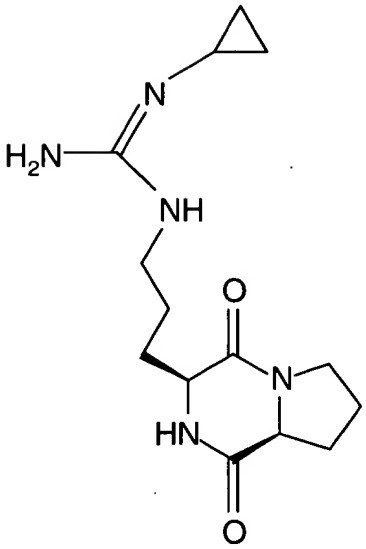
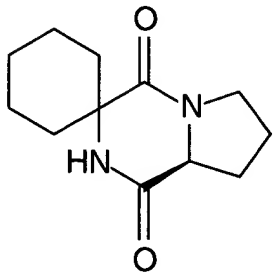


(16a)

29. (Canceled)

30. (Canceled)

31. (Original) The method of Claim 23 in which said compound has the following structure:



32. (Original) The method of Claim 23, wherein said compound is administered following acute or chronic brain injury.

33-72. (Canceled)

73. (Canceled)

74. (Previously Presented) The method of Claim 12, wherein R_1 is H.

75. (Previously Presented) The method of Claim 74, wherein n is an integer from 1 to 3;

X is –S-, -O-, -NH- or $–CH_2$-;

R_2 is $–CH_2$-R_5, $-CH_2$-R_5 or $–CH_2$-CH_2-CH_2-R_5;

R_5 is phenyl, imidazolyl other than imidazol-2-yl, indolyl other than indol-3-yl, -SR_6, -OR_6 or $–NHR_6$; and

R_6 is –H, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl, -$C(NH)NH_2$ or –$C(S)NH_2$.

76. (Currently Amended) The method of Claim 74, wherein n is an integer from 1 to 3;

X is –S-, -O-, -NH- or $–CH_2$-;

R_2 is –H, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl or $–(CH_2)_g$-CH_2-R_7;

g is an integer from 0 to 5;

R_7 is $-OR_8$, $-SR_8$, $-NR_8R_8$, $-CH(OR_8)-CH_3$, $-C(O)R_8$, $-C(O)OR_8$, $-C(O)NR_8R_8$, $-S-C(NH)NH_2$, $-NH-C(NH)NH_2$, $-NH-C(S)NH_2$, phenyl, ~~hydrogxyphenyl~~, hydroxyphenyl imidazolyl, indolyl; and

R_8 is –H, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl.

77. (Previously Presented) The method of Claim 74, wherein n is an integer from 1 to 3;

X is –S-, -O-, -NH- or $-CH_2-$; and

R_1 and R_2 taken together are $-CH_2-(CH_2)_b-$where b is an integer from 0 to 6.

78. (Previously Presented) The method of Claim 23, wherein R_1 is H.

79. (Previously Presented) The method of Claim 78, wherein n is an integer from1 to 3;

X is –S-, -O-, -NH- or $-CH_2-$;

R_2 is $-CH_2-R_5$, $-CH_2-CH_2-R_5$ or $-CH_2-CH_2-CH_2-R_5$;

R_5 is phenyl, imidazolyl other than imidazol-2-yl, indolyl other than indol-3-yl, $-SR_6$, $-OR_6$ or $-NHR_6$; and

R_6 is –H, (C_1-C_6) alkyl, (C_2-C_6) alkynyl or $-(CH_2)_g-CH_2-R_7$.

80. (Previously Presented) The method of Claim 78, wherein n is an integer from 1 to 3;

X is –S-, -O-, -NH- or $-CH_2-$;

R_2 is –H, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl or $-(CH_2)_g-CH_2-R_7$;

g is an integer from 0 to 5;

R_7 is $-OR_8$, SR_8, $-NR_8$, $-NR_8,R_8$, $-CH(OR_8)-CH_3$, $-C(O)R_8$, $-C(O)OR_8$, $-C(O)NR_8R_8$, $-S-C(NH)NH_2$, $-NH-C(NH)NH_2$, $-NH-C(S)NH_2$, phenyl, hydroxyphenyl, imidazolyl, indolyl; and

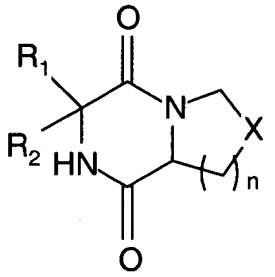
R_8 is -H-, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl.

81. (Previously Presented) The method of Claim 78, wherein n is an integer from 1 to 3;

X is –S-, -O-, -NH- or $–CH_2$-; and

R_1 and R_2 taken together are $–CH_2-(CH_2)_b-CH_2$-, where b is an integer from 0 to 6.

82. (Previously Presented) The method of Claim 12 wherein said compound has the formula:



wherein

X is $–CH_2$-;

n is 1;

R_1 is H;

R_2 is $(CH_2)_q R_{18}$,

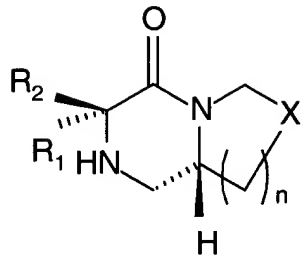
q is 0, 1, 2, 3 or 4; and

R_{18} is di-t-butylhydroxyphenyl.

83. (Previously Presented) The method of Claim 82 wherein R_{18} is 3,5-di-t-butyl-4 hydroxy phenyl.

84. (Previously Presented) The method of Claim 83 wherein q is 1.

85. (Previously Presented) The method of Claim 82 wherein said compound has the formula:



wherein

X is $-CH_2-$;

n is 1;

R_1 is H, and

R_2 is $(CH_2)_q R_{18}$;

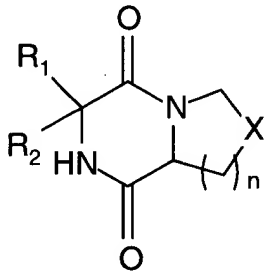
q is 0, 1, 2, 3, or 4; and

R_{18} is di-t-butylhydroxyphenyl.

86. (Previously Presented) The method of Claim 85 wherein R_{18} is 3,5-di-t-butyl-4-hydroxyphenyl.

87. (Previously Presented) The method of Claim 86 wherein q is 1.

88. (Previously Presented) The method of Claim 23, wherein said compound has the formula:



wherein

X is $-CH_2-$;

n is 1;

R_1 is H;

R_2 is $(CH_2)_q$ R_{18},

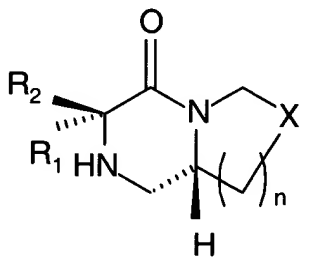
q is 0, 1, 2, 3 or ; and

R_{18} is di-t-butylhydroxyphenyl.

89. (Previously Presented) The method of Claim 88 wherein R_{18} is 3,5-di-t-butyl-4-hydroxyphenyl.

90 (Previously Presented) The method of Claim 89 wherein q is 1.

91. (Previously Presented) The method of Claim 23 wherein said compound has the formula:



wherein

X is $-CH_2-$;

n is 1

R_1 is H and

R_2 is $(CH_2)_q$ R_{18};

q is 0, 1, 2, 3, or 4

R_{18} is di-t-butylhydroxy phenyl.

92. (Previously Presented) The method of Claim 91 wherein R_8 is 3,5-di-t-butyl-4-hydroxyphenyl.

93. (Previously Presented) The method of Claim 92 wherein q is 1.

94. (Previously Presented) The method of Claim 75 wherein R_6 is t-butyl.

95. (Previously Presented) The method of Claim 79 wherein R_6 is t-butyl.